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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,289	03/04/2002	Johann Winderl	MAS-FIN-153	6619
24131	7590	05/03/2004	EXAMINER	
LERNER AND GREENBERG, PA			THAI, LUAN C	
P O BOX 2480			ART UNIT	
HOLLYWOOD, FL 33022-2480			PAPER NUMBER	

2827

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/090,289

Applicant(s)

WINDERL, JOHANN

Examiner

Luan Thai

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-23 is/are pending in the application.
- 4a) Of the above claim(s) 15-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13 is/are rejected.
- 7) ☒ Claim(s) 10-12, 14 and 23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: .

DETAILED ACTION

1. Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a).
2. The indicated allowability of claims 1-14 in the previous Office action (paper No. 8) are withdrawn in view of the newly discovered reference(s) to Miyamoto et al., Yamashita, and Senba et al. Rejections based on the newly cited reference(s) follow.
3. Applicant's Supplemental Amendment filed on 2/20/04 has been entered.
4. Claims 1-8 and 10-23 are pending in this application.
5. Claims 15-22 have been withdrawn from consideration as being directed to a non-elected invention.

Objection, Improper dependent claim

6. Claims 13-14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim (i.e., claims 13-14 depend on claim 9 which has been canceled). Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-3, 5-8, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyamoto et al. (6,335,565).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1-3, 5-8, and 13, Miyamoto et al. (see specifically figures 35 and 39-47) disclose an electronic component comprising: at least two wiring boards (2a-2b) stacked on top of one another and parallel to one another, at least one of the at least two wiring boards having apertures (8a-8b) formed therein; at least two chips (MF-AD) each mounted on a respective wiring board and electrically connected to the respective wiring board; solder connections (11) mechanically and electrically interconnecting the at least two stacked wiring boards, solder connections (11) extending through the apertures (8a-8b) and over one or more levels of the at least two stacked wiring boards, wherein the wiring boards (2a-2b) have edge regions where solders are fused together to form the connections (11) (see figures 39-40, and 44, Col. 29, lines 21+).

Miyamoto et al. further disclose the wiring boards (2a-2b) having undersides with supporting points (e.g., the surfaces of the epoxy resin 17 in figures 42-43)

disposed centrally on the undersides of the wiring boards, and a respective chip of the chips having a rear side bearing on one of the under sides.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (6,335,565) in view of Isaak (6,180,881).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 4, Miyamoto et al disclose all the limitations of the claimed invention as detailed above except for the solder having a smaller diameter than the aperture.

Isaak while related to a similar chip stacked package design teaches (see specifically figures 3-4) the stacked substrates (16) having apertures (22), each of which has a bigger diameter than the solder ball (24) that is electrically connected the stacked substrates together. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form Miyamoto et al's device package with the solder balls having a smaller diameter than the apertures in order to enhance the electrical connections between the stacked substrates and reduce the thickness of the package.

11. The following reference(s) is/are cited as of interest to this application:

U.S. Pat. No. 5,763,939 to Yamashita and U.S. Pat. No. 6,188,127 to Senba et al
is/are cited for showing the semiconductor stacked wiring boards similar to the one
disclosed by Miyamoto et al above.

Allowable Subject Matter

12. Claims 10-12 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

The stacked wiring boards including an uppermost wiring board and in
undermost wiring board, and at least one of the uppermost wiring board and at
least one of the undermost wiring board and the undermost wiring board having
near-edge electrical contacts without the apertures, as recited in dependent claim
23, especially when these limitations are considered within the specific
combination claimed,

14. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Luan Thai whose telephone number is 571-272-1935.
The examiner can normally be reached on 6:45 AM - 4:15 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Luan Thai', with a long horizontal flourish extending to the right.

Luan Thai

United States Patent & Trademark Office
Primary Examiner
Jef-6A15
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